

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1.-25. (canceled)

26. (currently amended) A device capable of controllably producing an aqueous solution of chlorine dioxide when said device is placed into water, the device comprising a water-permeable membrane defining at least in part an enclosed space containing a direct mixture of at least one metal chlorite and at least one acid forming component, said acid forming component being selected from the group consisting of water soluble acids, water soluble acid salts, synthetic molecular sieves, acid ion exchange resins, acid treated clays and acid treated calcined clays, and wherein said metal chlorite and said acid forming component are such that they will react with each other in the presence of water but not in the substantial absence of water to produce chlorine dioxide, said membrane comprising a material which permits: (a) controlled passage of liquid water and/or water vapor into the enclosed space to thereby allow the metal chlorite and the acid forming component to react to produce chlorine dioxide within the enclosed space and (b) passage of the so produced chlorine dioxide into a body of liquid water to produce the aqueous solution of chlorine dioxide.

27. (original) The device of claim 26 wherein the membrane is substantially water soluble.

28. (original) The device of claim 26 wherein the membrane is substantially water insoluble.

29. (previously presented) The device of claim 26 wherein the metal chlorite is selected from the group consisting of alkali metal chlorites and alkaline earth metal chlorites.

30. (previously presented) The device of claim 26 wherein the metal chlorite is sodium chlorite.

31. (previously presented) The device of claim 30 wherein the acid forming component is a dry water soluble solid which produces an acidic solution when dissolved on water.

32. (previously presented) The device of claim 31 wherein the acid forming component is selected from the group consisting of acids and acidic salts.

33. (previously presented) The device of claim 32 wherein the acid is selected from organic acids.

34. (previously presented) The device of claim 33 wherein the organic acids are selected from the group consisting of citric acid, tartaric acid, and oxalic acid.

35. (previously presented) The device of claim 34 wherein the organic acid is citric acid.

36. (previously presented) The device of claim 32 wherein the acidic salts are selected from the group consisting of alkali metal acid salts and alkaline earth metal acidic salts.

37. (previously presented) The device of claim 32 wherein the acidic salts are selected from the group consisting of magnesium nitrate, lithium chloride, magnesium sulfate, aluminum sulfate, sodium acid sulfate and potassium acid sulfate.

38. (previously presented) The device of claim 26 wherein the synthetic molecular sieves are selected from the group consisting of synthetic zeolite Y, dealuminated Y, mordenite and ZSM-5.

39. (previously presented) The device of claim 26 wherein the acid forming component produces a pH below about 5 when mixed with water.

40. (previously presented) The device of claim 26 wherein the aqueous solution of chlorine dioxide has a pH from about 2 to about 10.

41. (previously presented) The device of claim 26 wherein the membrane is water softenable.

42. (previously presented) The device of claim 26 wherein the membrane is at least partially water soluble.

43. (currently amended) The device of claim 42 wherein the membrane dissolves in water after a period of time at least equal in length to the time it takes the metal chlorite and the acid forming component to substantially react to produce chlorine dioxide, wherein the metal chlorite comprising an uncoated metal chlorite is in the form of a powder and the metal chlorite is mixed with the acid forming component in the enclosed space.

44. (previously presented) The device of claim 26 wherein the membrane is made of a material selected from the group consisting of gelatin, polyvinyl alcohol, cellulose and derivatives thereof.

45. (previously presented) The device of claim 44 wherein the derivative of cellulose is hydroxypropyl methyl cellulose.

46. (previously presented) The device of claim 28 wherein the membrane material is made from a microporous nonwoven hydrophobic polymer.

47. (previously presented) The device of claim 46 wherein the microporous nonwoven hydrophobic polymer is selected from polyethylene and polytetrafluoroethylene.

48. (currently amended) The device of claim 26 wherein the membrane contains openings of sufficient size to enable the controlled passage of water into contact with the metal chlorite and the acid forming component, wherein the metal chlorite comprising an uncoated metal chlorite is in the form of a powder and the metal chlorite is mixed with the acid forming component in the enclosed space.

49. (previously presented) The device of claim 26 wherein the mixture is present in the form of tablets.

50. (previously presented) The device of claim 26 wherein the mixture is present in the form of powders.

51. (previously presented) The device of claim 26 wherein the mixture is present in the form of granules.

52. (previously presented) The device of claim 26 wherein the mixture is present in the form of pellets.

53. (previously presented) The device of claim 26 wherein the mixture is present in the form of agglomerates.

54. (previously presented) The device of claim 53 wherein the agglomerates are present as two types:

(a) a first type at least one metal chlorite or a mixture of one or more metal chlorites and one or more non-acid forming additives; and

(b) a second type comprising at least one acid forming component or a mixture of one or more acid forming components and one or more metal chlorite-free additives.

55. (previously presented) The device of claim 54 wherein the non-acid forming additives are selected from the group consisting of silica gel desiccant, paraffin wax tableting binder, sodium and sulfate filler and mixtures thereof.

56. (previously presented) The device of claim 54 wherein the metal chlorite-free additives are selected from the group consisting of ion exchangers, tableting binders, desiccants and mixtures thereof.

57. (previously presented) The device of claim 53 wherein the agglomerates have a particle size of at least 80 microns.

58. (previously presented) The device of claim 57 wherein the agglomerates have a particle size above about 500 microns.

59. (previously presented) The device of claim 58 wherein the agglomerates have a particle size above about 1,000 microns.

60. (previously presented) The device of claim 26, wherein the membrane comprises kraft paper.

61. (currently amended) A device capable of producing an aqueous solution of chlorine dioxide when said device is placed into water, the device comprising a water-permeable membrane defining at least in part an enclosed space containing a mixture consisting of at least one metal chlorite and at least one acid forming component, said acid forming component being selected from the group consisting of water soluble acids, water soluble acid salts, synthetic molecular sieves, acid ion exchange resins, acid treated clays and acid treated calcined clays, and wherein said metal chlorite and said acid forming component are such that they will react with each other in the presence of water but not in the substantial absence of water to produce chlorine dioxide, said membrane comprising a material which permits: (a) controlled passage of liquid water and/or water vapor into the enclosed space to thereby allow the metal chlorite and the acid forming component to react to produce chlorine dioxide within the enclosed space and (b) passage of the so produced chlorine dioxide into a body of liquid water to produce the aqueous solution of chlorine dioxide.

62. (previously presented) The device of claim 26 capable of producing an aqueous solution comprising from about 0.5 ppm to about 200 ppm chlorine dioxide.

63. (previously presented) A device capable of producing an aqueous solution of chlorine dioxide when said device is placed into water, the device comprising a water-permeable membrane defining at least in part an enclosed space containing a direct mixture of at least one metal chlorite and at least one acid forming component, said acid forming component being selected from the group consisting of synthetic molecular sieves, acid ion exchange resins, acid treated clays and acid treated calcined clays, and wherein said metal chlorite and said acid forming component are such that they will react with each other in the presence of water but not in the substantial

absence of water to produce chlorine dioxide, said membrane comprising a material which permits: (a) controlled passage of liquid water and/or water vapor into the enclosed space to thereby allow the metal chlorite and the acid forming component to react to produce chlorine dioxide and (b) passage of the so produced chlorine dioxide into a body of liquid water to produce the aqueous solution of chlorine dioxide.